METALLURGIA — INDEX TO VOLUME 58

JANUARY — DECEMBER 1991

A

Advanced Materials 91 show, lively debut for ... 240
Aluminium hot spots in the automotive industry ... 448
ASM Forging Congress, focus on latest advances ... 44
Atmosphere technologies in action ... 73
Automated test piece handling ensures high quality ... 35
Awards, Gas Energy Management ... 261

B

Bar induction quench tempering line ... 160
BFIA — past, present and future ... 346
BFIA Annual Technical Conference ... 336
BFIA Technical Convention — reviewed ... 438
BIFCA — working for the manufacturer ... 350

C

Chamber furnace, multi-purpose automatic ... 91
Closed-die forging — a decade of innovation and change ... 340
CNC metal powder presses meet demands ... 208
Cold Forging Group — in review ... 348
Cold forming — current state-of-the-art, chemical surface treatment for ... 48
Cold forming focus established, rotary forming and ... 87
Cold jet cryogenic blast cleaning ... 445
Computer-aided engineering of precision aluminium forgings ... 54
Conferences highlighted, leading ... 242
Consarc/Osprey joint venture ... 23
Contract heat-treatment — the logical choice ... 349
Contract heat-treatment, plant investment boosts new name in ... 92
Control system developed for automatic plant operation, low cost elec ... 390
Conveyor-oven in automatic heat-treat line, gas-fired ... 260
Coordinate measuring machines uprate accuracy ... 426
Copper alloy stockholder — building a reputation ... 345
Corrosion-resistant titanium castings ... 447
Cryogenic spin testing of jet engine discs ... 354

D

Development success for advanced upsetter ... 336
Dryer concept recovers investment in two years, new ... 282

E

Electric melting — the way ahead ... 139
Electric process heating — user friendly in the forging industry ... 65
Electrical heating in action ... 67
Electroheat — a real production bonus in the metals industry ... 61
Equipment and processes in action ... 254
Equipment and processes, developments in ... 338
Equipment and techniques, advances in ... 124
Equipment and technologies applied ... 196
Extrusion development generates international interest ... 447
Extrusion press, hydraulic commissioned ... 418

F

Ferrous powder metallurgy parts — where from here ... 8
Forged alloy shows high temperature resistance ... 88
Forging in Germany — performance and developments profiled ... 147
Forging press boosts manufacturing capability ... 425
Forging shops, automobile manufacturers streamline their ... 380
Forging, no immediate upturn in sight for UK industry? 415
Forming machine for agricultural parts, special ... 148
Furnace atmospheres — on introduction ... 112
Furnace control and monitoring of emissions from combustion processes ... 392
Furnace efficiency improved at Scottish engineering company ... 70
Furnace efficiency in the UK, improving ... 298
Furnace equipment — the way ahead ... 345
Furnaces 91 and Advanced Materials 91, focus on ... 101
Furnaces 91 Exhibition previewed ... 226
Furnaces for PM processing, what's new in ... 16
Furnaces installed for high quality steels, new efficient reheating and a ... 367
Furnaces, electric control systems for ... 385
Fusible alloys, lower tooling costs with ... 432

G

Gas-fired furnaces highlighted for aluminium melting ... 259

H

Heat-treatment group expands nationwide ... 286
Heat-treatment plant and processes, total solutions in ... 98

I

Induction heating, fast ... 88
Industrial fasteners — projects and investments provide hope for future ... 348
Industry and the environment — a strategic overview ... 216
Integrated automation and quick tool change — high in the 90's ... 458
Integrity, castings for aerospace, high ... 24
Ion implantation at forefront of surface treatment technology, advances in ... 286
Ion nitriding application growth for automotive components ... 177

L

Laser measurement system ... 444
Laser surface techniques, applied research into ... 97
Lasers for surface surface treatment find many uses ... 94

M

Manual handling of loads, HSC issues draft regulations on ... 467
Material testing specialist invests in new laboratory facilities ... 461
Materials and application developments ... 368
Materials handling and automation technology round-up 466
Materials handling, remote radio control systems for ... 468
Mechanically-alloyed materials, new ... 23
Metal cleanliness, pushing the frontiere of ... 136
Metal finishers criticise restrictions on solvents ... 438
Metal recovery, reverse osmosis in ... 440
Metals Engineering 91 Event — Countdown to ... 157
Metals Engineering 91 Event — show review ... 382
Metals Engineering 91 Event on course for success ... 224
Metals Engineering 91 Event, international press mission 135
Midland Heat-Treatments — a central role in contracting 104
Midlands Electricity, demonstration facilities at ... 164
Multiflow quenching, improved ... 398

N

National Electricity Awards, metals companies highlighted in ... 63
Near net shape cold forging, modern ... 310
Net shape forming through precision casting technologies 28
NO_x emissions from recuperative and regenerative burners, control of ... 272

P

P/M products, technical ceramics ... 204
Paint finish meets environment needs ... 442
PM processing, what's new in furnaces for ... 16
Powder alloy processor's major plant investment, specialist ... 22
Precision casting technologies, net shape forming through 28
Precision cold forging, bright future for ... 318
Press safety guidelines, update on ... 380
Pressure upcaster produces sterling silver strip ... 402
Process control — hardware and techniques around the industry ... 394
Process temperature control, what's new in ... 121
Pulsed plasma nitriding facility, US forge installs ... 422

Q

Quality assurance — refractory insurance ... 302
Quality in Europe — EC Green Paper sets the standards 35
Quality is negotiable ... 352
Quality testing in action ... 36
Quenching media and equipment in action ... 401

R

Radiant-roof furnace sets new economy standards ... 306
Re-heat energy savings demonstrated ... 73
Re-heat furnaces, colour viewing system for ... 74
Recuperative radiant tubes, new generation of ... 250
Recuperation for 700°C-1100°C processes, high performance ... 244
Roller hearth furnace for heat-treating small components 259
Rotary forging and cold forming focus established ... 87

S

Scanning Electron Microscope as a quality control tool 464
Scottish Stampings, robotic finishing technology at ... 416
Sealed-quench furnace — complete reliability and flexibility ... 102
Sinter-HIP — a hard act to follow ... 366
Steel and superalloy investment casting, filtration of ... 30
Steel annealing furnaces linked to scheduling system ... 162
Steel stockholder shows commitment to quality ... 35
Superalloys produced by P/M & HIP route ... 432
Surface engineering, ion-assisted deposition for ... 180
Surface engineering, realising the benefits ... 435
Surface inspection, major research project develops ... 439
Surface measurement, non-contact shows broad application ... 462
Surface technologies, conference explores ... 159

T

Testing for quality ... 465
Thermal process engineering in Germany — high tech energy savings ... 149
Thermal reclamation, UK foundries invest in ... 260
Thermal spray developments ... 446
Transparency — a key advantage in modern forging systems ... 50

U

US stampings market, growth of spotlighted ... 6

V

Vacuum furnace technology, innovative approach in ... 292
Vacuum heat-treatment — friend of the environment ... 190
Vacuum heat-treatment furnace fitted with cryogenic pumping system ... 389
Vacuum metallurgical processing, recent advances in ... 186
Vacuum plant in action ... 193
Verson Wilkins' new manufacturing complex ... 6

W

Wet blasting brings environmental benefits ... 443

Supplements 1991

June 1991 issue
Annual Forging Supplement and Buyers Guide (code S)
Aerospace Forgings Ltd — company profile
July 1991 issue
Wellman Furnaces Ltd — company profile
August 1991 issue
Advanced Materials Supplement (code AM)
October 1991 issue
Contract Heat Treatment supplement (code CH)
EA Technology-company profile
November 1991 issue
Lamberton Robotics Ltd — company profile
December 1991 issue
Annual Furnaces Supplement & Buyers Guide (code FUS)

SUPPLEMENT INDEX

A

Advanced Materials and Processes — equipment and techniques in action around the industry AM16-30
Advanced materials — the way forward ... AM4
Autoclave technology for aerospace industry, trends in ... AM14

C

Carburising process, accelerated gas pioneered ... FUS8
CIP and HIP systems, progress in ... AM11
Closed-die forging, automatic systems for ... S5
Cold forging of steel, computer-aided process planning ... S4
Composite manufacture, high-tech engineering facilities support precision ... AM15
Contract heat-treatment, buyers guide to companies capabilities ... CH10-11
Contract heat-treatment, experience and reliability CH12
Corrosion resistance, in-line oxide coating improves ... FUS6

E

Environment friendly, quality heat-treatments ... CH9

F

Forging equipment, materials and services, alphabetical guide to ... S13
Forging of front-wheel drive shafts, automatic ... S6
Furnace builders, export success for ... FUS10

H

Heat-treat group expands operations ... CH12
Heat-treatment processes — quality management disciplines highlight preventable faults ... CH8
Heat-treatment, new dimension ... CH2

L

Lubricants boost forging productivity ... S12

M

Materials Week '91 — Cincinnati show review ... FUS18

P

Powder metallurgy highlighted, innovations in ... AM7

R

Research centre to boost UK industry ... AM10

T

Thixoforging — semi-solid metal forming ... S10

U

US Forge equipment event reviewed ... S9

V

Vacuum furnace equipment for advanced materials ... AM9

AUTHOR INDEX

Ahmed, N A G ... 180
Al-Zanki, I A ... 54
Albutt, K ... 28
Atterbury, T ... 190
Baker, M ... 348
Barlow, P ... 468
Bayliss, R H ... 340
Beatson, J ... 70
Bryan, L ... 336
Burgess, C K ... 61
Butler, R G ... 177
Child, N ... 30
Choppin, J ... 352
Cowie, A ... 104
Cross, J ... 440
Cutler, C P ... 54
Dann, H ... 112
Dineley, P E ... 186
Dovey, R R ... 452
Excell, M ... 345
Field, M ... 318
Fujikawa, T ... AM11
Geiger, R ... 310
Glenn, D ... 422
Hallatt, T ... FUS3
Hermes, F ... S5
Hibberd, D ... FUS3
Hineman, G ... 208
Holthausen, M ... 208
Howlett, S P ... AM4
Illingworth, D H ... 367
Jarrald, B J ... 465
Lahrem, Dr A F ... 149
Lengyel, B ... S4
Leon, R ... 345
Lewis, D ... 244
Mahmood, T ... S4
Morris, J ... FUS6
Nies, N ... 208
Pearson, A ... 139
Pfeiffer, A ... 310
Powis, D ... 346
Pratt, A ... 349
Rauber, O ... S5
Rees, R ... 458
Remges, W ... 177
Rickards, G K ... 464
Scott, R ... 50
Shorthouse, I ... CH12
Smith, E ... 392
Smith, J A ... 385
Standring, P ... 348
Swerdlow, M S ... AM4
Timothy, S ... 136
Tucker, R J ... 272
Vaughan, D ... 216
Vaughan, D A J ... 435
Watkins, K ... 180
Watkins, K ... 366
Watson, A ... 250
Watts, A F ... 389
Whelan, R C ... AM4
Whittaker, D ... AM4
Wilkins, D ... CH2
Wilson, R ... 402